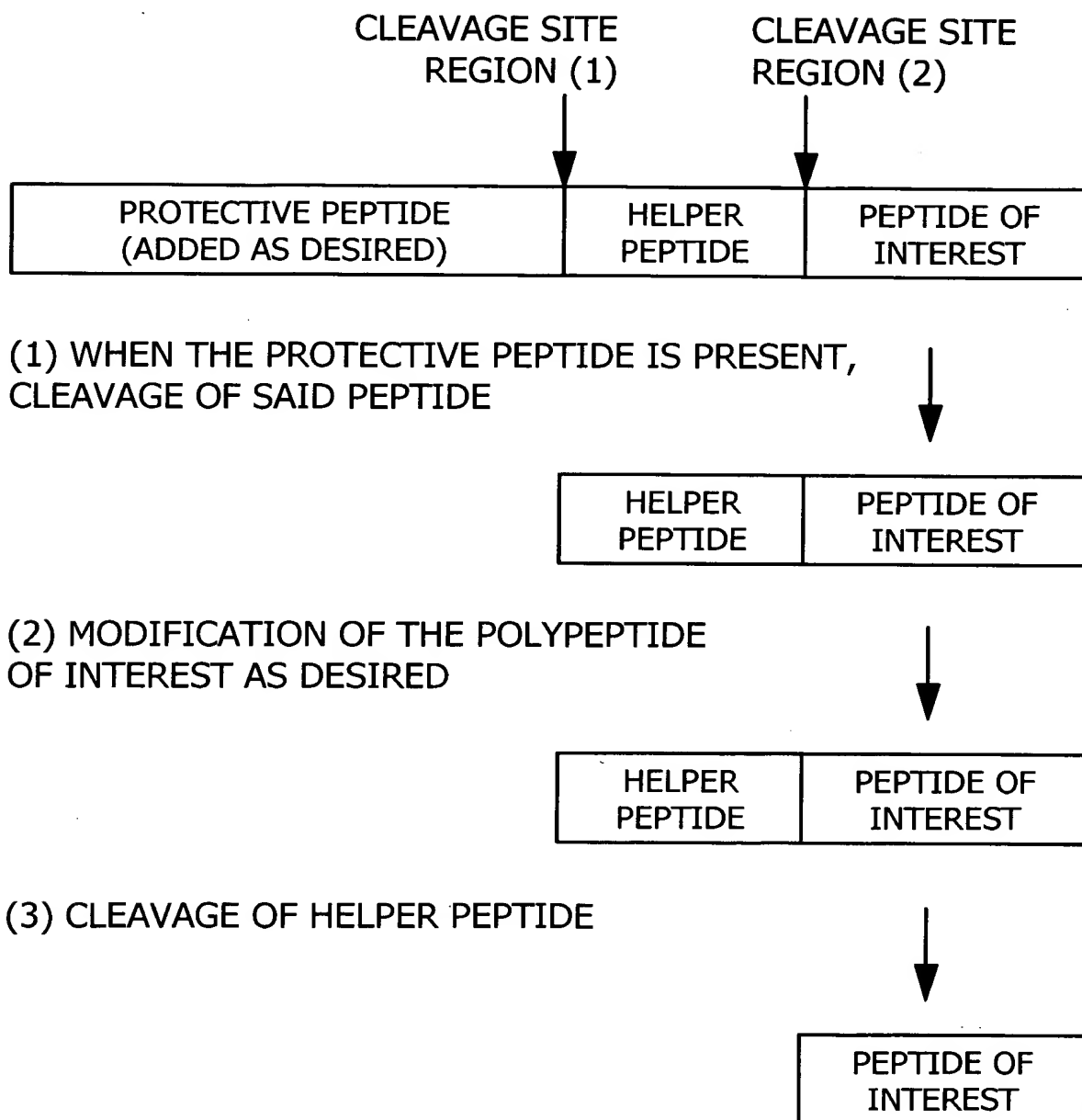


APPROVED	U.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

FIG. 1



APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

APP. NO. FILING DATE: SEPTEMBER 29, 1999
 TITLE: PROCESS FOR PRODUCING PEPTIDES USING A HELPER
 PEPTIDE
 INVENTOR(S): KAZUHIRO OHSUYE ET AL
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FIG. 2

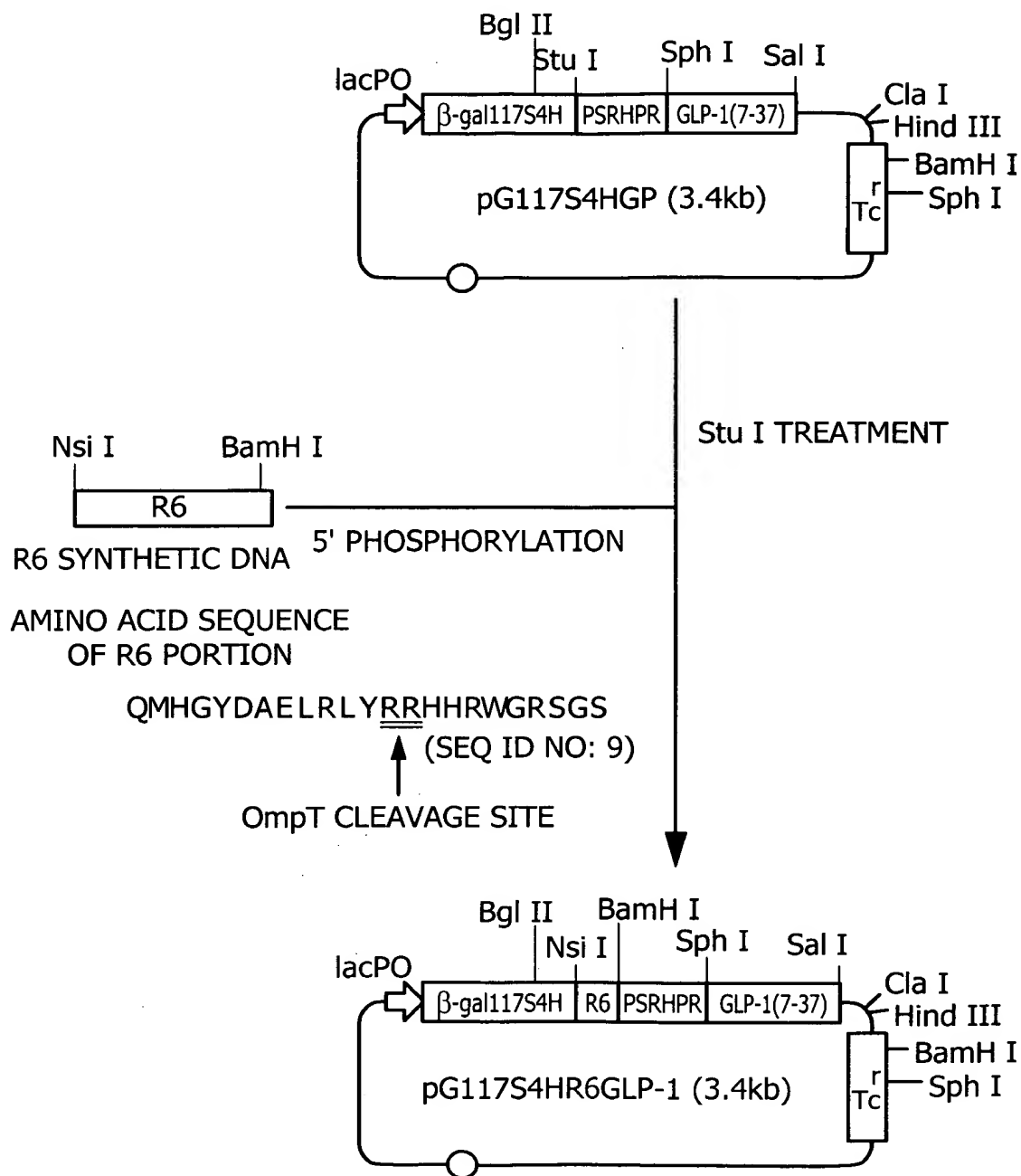
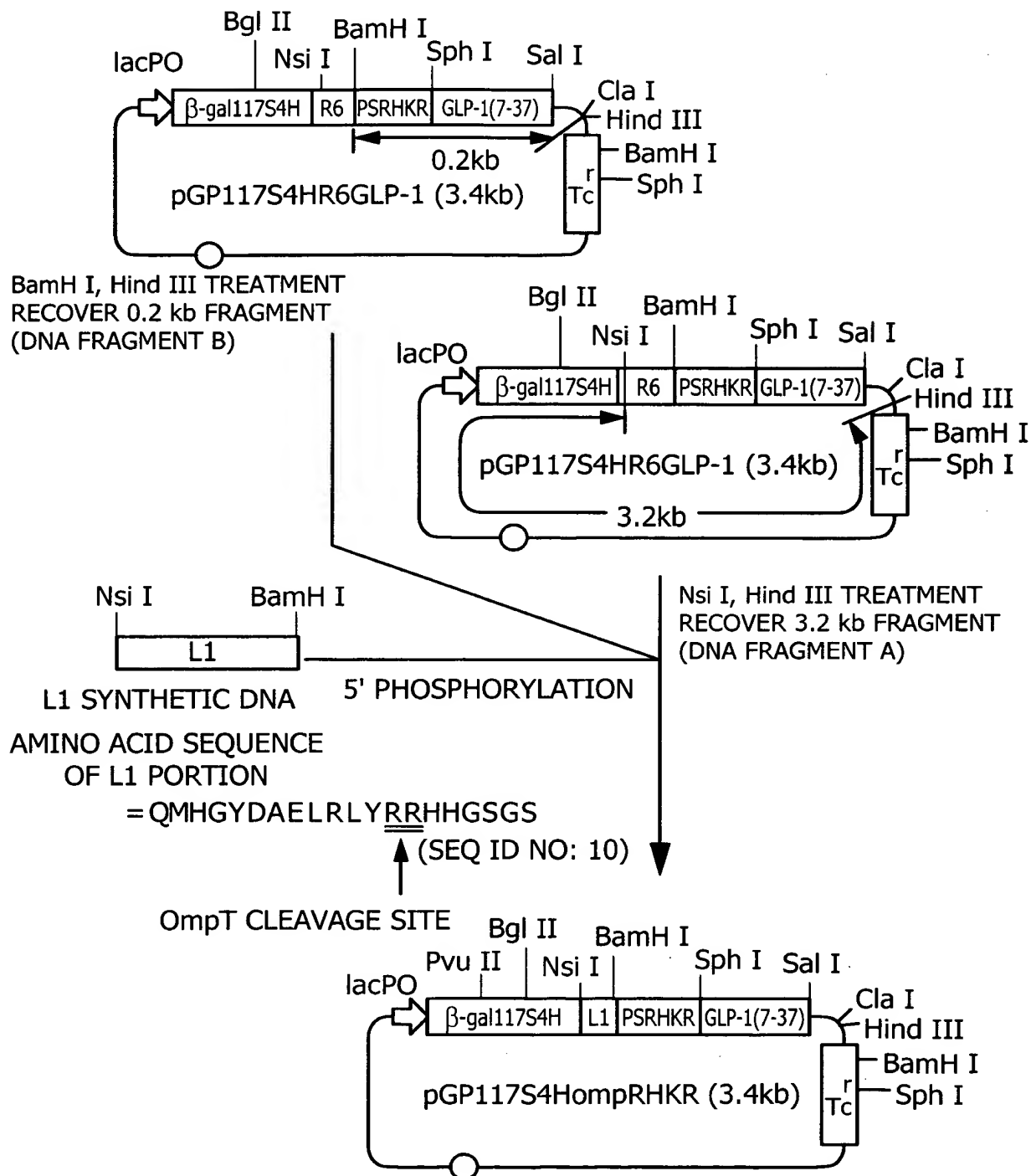


FIG. 3



APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

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TITLE: PROCESS FOR PRODUCING PEPTIDES USING A HELPER PEPTIDE

INVENTOR(S): KAZUHIRO OHSUYE ET AL

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FIG. 4

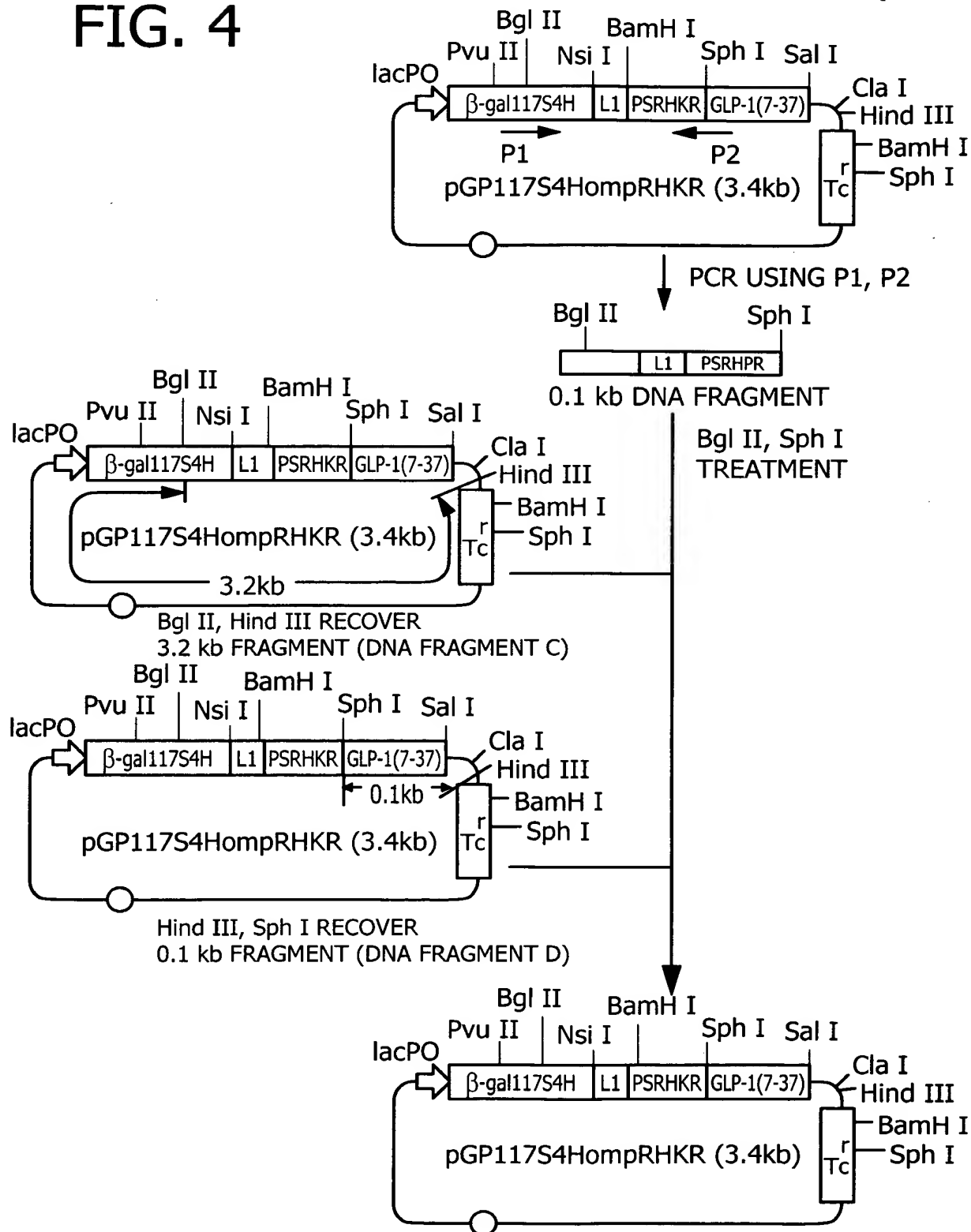
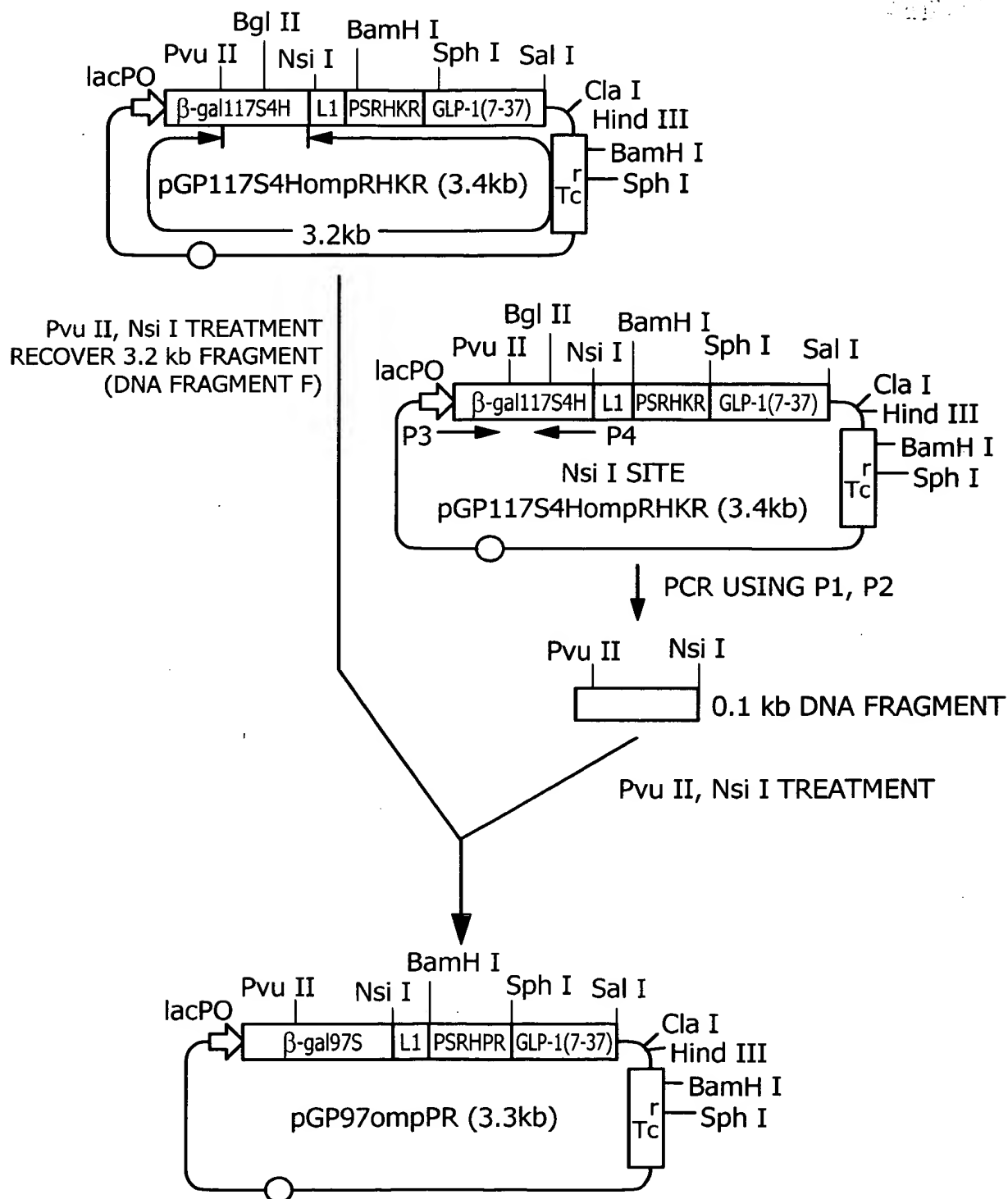


FIG. 5



APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

FIG. 6

R6 SEQUENCE
 CORRESPONDING
 AMINO ACID SEQUENCE

5' CAG ATG CAT GGT TAT GAC GCG GAG CTC CGG CTG TAT CGC CGT CAT CAC CGG
 3' GTC TAC GTA CCA ATA CTG CGC CTC GAG GCC GAC ATA GCG GCA GTA GTG GCC
 Gln Met His Gly Tyr Asp Ala Glu Leu Arg Leu Tyr Arg Arg His Arg
 (SEQ ID NO: 11) (SEQ ID NO: 12)

TGG GGT CGT TCC GGA TCC 3'
 ACC CCA GCA AGG CCT AGG 5'
 Trp Gly Arg Ser Gly Ser

L1 SEQUENCE

5' T GGT TAT GAC GCG GAG CTC CGC CTG TAT CGC CGT CAT CAC GGT TCC G 3' (SEQ ID NO: 13)
 3' ACGTA CCA ATA CTG CGC CTC GAG GCG GAC ATA GCG GCA GTA GTG CCA AGG CCT AG 5' (SEQ ID NO: 14)

P1 PRIMER SEQUENCE

5' GAC TCA GAT CTT CCT GAG GCC GAT 3' (SEQ ID NO: 15)

P2 PRIMER SEQUENCE

5' AAA GGT ACC TTC CGC ATG CCG CGG ATG TCG AGA AGG 3' (SEQ ID NO: 16)

P3 PRIMER SEQUENCE

5' AGG CCA GGA ACC GTA AAA AG 3' (SEQ ID NO: 17)

P4 PRIMER SEQUENCE

5' AAA ATG CAT CGC ATC GTA ACC GTG CAT CT 3' (SEQ ID NO: 18)

APPROVED	U.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

FIG. 7

Met	Thr	Met	Ile	Thr	Asp	Ser	Leu	Ala	Val	Val	Leu	Gln	Arg	Lys	15
Asp	Trp	Asp	Asn	Pro	Gly	Val	Thr	Gln	Leu	Asn	Arg	Leu	Ala	Ala	30
His	Pro	Pro	Phe	Ala	Ser	Trp	Arg	Asn	Ser	Asp	Asp	Ala	Arg	Thr	45
Asp	Arg	Pro	Ser	Gln	Gln	Leu	Arg	Ser	Leu	Asn	Gly	Glu	Trp	Arg	60
Phe	Ala	Trp	Phe	Pro	Ala	Pro	Glu	Ala	Val	Pro	Ala	Ser	Leu	Leu	75
Glu	Ser	Asp	Leu	Pro	Glu	Ala	Asp	Thr	Val	Val	Val	Pro	Ser	Asn	90
Trp	Gln	Met	His	Gly	Tyr	Asp	Ala	Met	His	Gly	Tyr	Asp	Ala	Glu	105
Leu	Arg	Leu	Tyr	Arg	Arg	His	His	Gly	Ser	Gly	Ser	Pro	Ser	Arg	120
His	Pro	Arg	His	Ala	Glu	Gly	Thr	Phe	Thr	Ser	Asp	Val	Ser	Ser	135
Tyr	Leu	Glu	Gly	Gln	Ala	Ala	Lys	Glu	Phe	Ile	Ala	Trp	Leu	Val	150
Lys	Gly	Arg	Gly												154

(SEQ ID NO: 20)

AMINO ACID SEQUENCE OF FUSION PROTEIN (GP97ompPR)

ENCODED BY pGP97ompPR

lac PO

1

462

TTGACAGCTTATCATCGATAAGCTTTA

(SEQ ID NO: 19)

APPROVED	C.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

APPLN. FILING DATE: SEPTEMBER 29, 1999

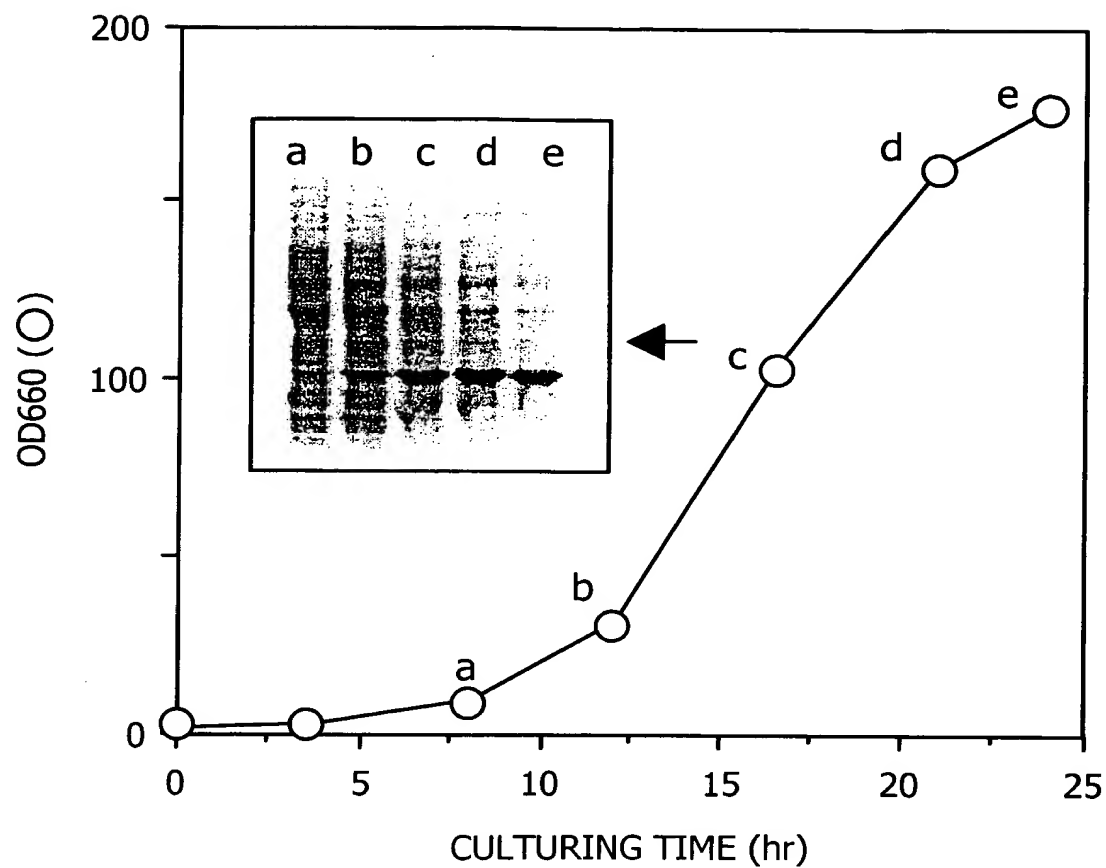
TITLE: PROCESS FOR PRODUCING PEPTIDES USING A HELPER PEPTIDE

INVENTOR(S): KAZUHIRO OHSUYE ET AL

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FIG. 9



APPROVED	D.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

BEFORE REACTION

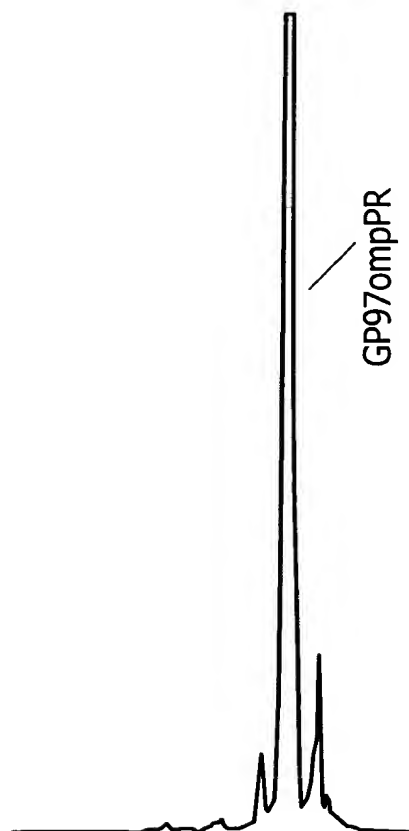


FIG. 10A

AFTER REACTION

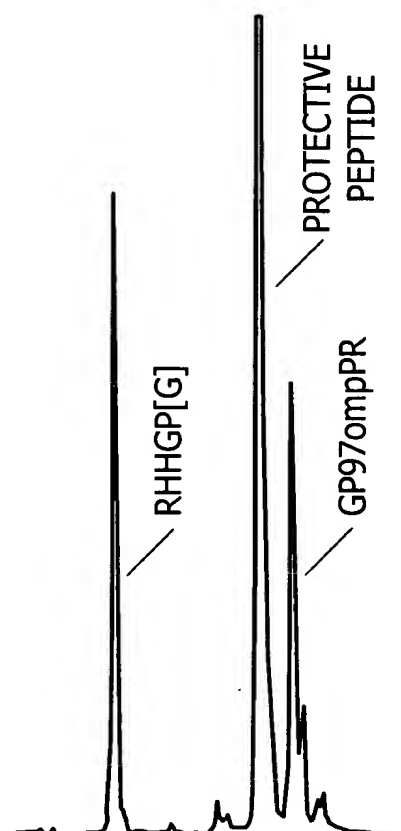


FIG. 10B

APPROVED	U.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

FIG. 11

Met	Thr	Met	Ile	Thr	Asp	Ser	Leu	Ala	Val	Val	Leu	Gln	Arg	15
Asp	Trp	Asp	Asn	Pro	Gly	Val	Thr	Gln	Leu	Asn	Arg	Leu	Ala	Lys
His	Pro	Pro	Phe	Ala	Ser	Trp	Arg	Asn	Ser	Asp	Asp	Ala	Arg	30
Asp	Arg	Pro	Ser	Gln	Gln	Leu	Arg	Ser	Leu	Asn	Gly	Glu	Trp	Ala
Phe	Ala	Trp	Phe	Pro	Ala	Pro	Glu	Ala	Val	Pro	Ala	Ser	Leu	45
Glu	Ser	Asp	Leu	Pro	Glu	Ala	Asp	Thr	Val	Val	Val	Pro	Ser	Thr
Trp	Gln	Met	His	Gly	Tyr	Asp	Ala	Pro	Ile	Tyr	Thr	Asn	Val	60
Tyr	Pro	Ile	Thr	Val	Asn	Pro	Pro	Phe	Val	Pro	Thr	Glu	Pro	Arg
His	His	His	His	Gly	Gly	Arg	Gln	Met	His	Gly	Tyr	Asp	Ala	75
Leu	Arg	Leu	Tyr	Arg	Arg	His	His	Arg	Trp	Gly	Arg	Ser	Gly	Leu
Pro	Ser	Arg	His	Lys	Arg	His	Ala	Glu	Gly	Thr	Phe	Thr	Ser	90
Val	Ser	Ser	Tyr	Leu	Glu	Gly	Gln	Ala	Ala	Lys	Glu	Phe	Ile	Asn
Trp	Leu	Val	Lys	Gly	Arg	Gly								105

(SEQ ID NO: 21)
 AMINO ACID SEQUENCE OF FUSION PROTEIN
 ENCODED BY pG117S4HR6GLP-1

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

APPLN. FILING DATE: SEPTEMBER 29, 1999

TITLE: PROCESS FOR PRODUCING PEPTIDES USING A HELPER PEPTIDE

INVENTOR(S): KAZUHIRO OHSUYE ET AL

APPLICATION SERIAL NO: 09/402,093

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FIG. 12

Met	Thr	Met	Ile	Thr	Asp	Ser	Leu	Ala	Val	Val	Leu	Gln	Arg	Lys
Asp	Trp	Asp	Asn	Pro	Gly	Val	Thr	Gln	Leu	Asn	Arg	Leu	Ala	30
His	Pro	Pro	Phe	Ala	Ser	Trp	Arg	Asn	Ser	Asp	Asp	Ala	Arg	45
Asp	Arg	Pro	Ser	Gln	Gln	Leu	Arg	Ser	Leu	Asn	Gly	Glu	Trp	60
Phe	Ala	Trp	Phe	Pro	Ala	Pro	Glu	Ala	Val	Pro	Ala	Ser	Leu	75
Glu	Ser	Asp	Leu	Pro	Glu	Ala	Asp	Thr	Val	Val	Val	Pro	Ser	90
Trp	Gln	Met	His	Gly	Tyr	Asp	Ala	Pro	Ile	Tyr	Thr	Asn	Val	105
Tyr	Pro	Ile	Thr	Val	Asn	Pro	Pro	Phe	Val	Pro	Thr	Glu	Pro	120
His	His	His	His	Gly	Gly	Arg	Gln	Met	His	Gly	Tyr	Asp	Ala	135
Leu	Arg	Leu	Tyr	Arg	<u>Arg</u>	<u>His</u>	<u>His</u>	<u>Gly</u>	<u>Ser</u>	<u>Gly</u>	<u>Ser</u>	<u>Pro</u>	<u>Ser</u>	150
<u>His</u>	<u>Lys</u>	<u>Arg</u>	<u>His</u>	<u>Ala</u>	<u>Glu</u>	<u>Gly</u>	<u>Thr</u>	<u>Phe</u>	<u>Thr</u>	<u>Ser</u>	<u>Asp</u>	<u>Val</u>	<u>Ser</u>	165
<u>Tyr</u>	<u>Leu</u>	<u>Glu</u>	<u>Gly</u>	<u>Gln</u>	<u>Ala</u>	<u>Ala</u>	<u>Lys</u>	<u>Glu</u>	<u>Phe</u>	<u>Ile</u>	<u>Ala</u>	<u>Trp</u>	<u>Leu</u>	180
<u>Lys</u>	<u>Gly</u>	<u>Arg</u>	<u>Gly</u>											

(SEQ ID NO: 22)
 AMINO ACID SEQUENCE OF FUSION PROTEIN
 ENCODED BY pG117S4HompRHKR

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

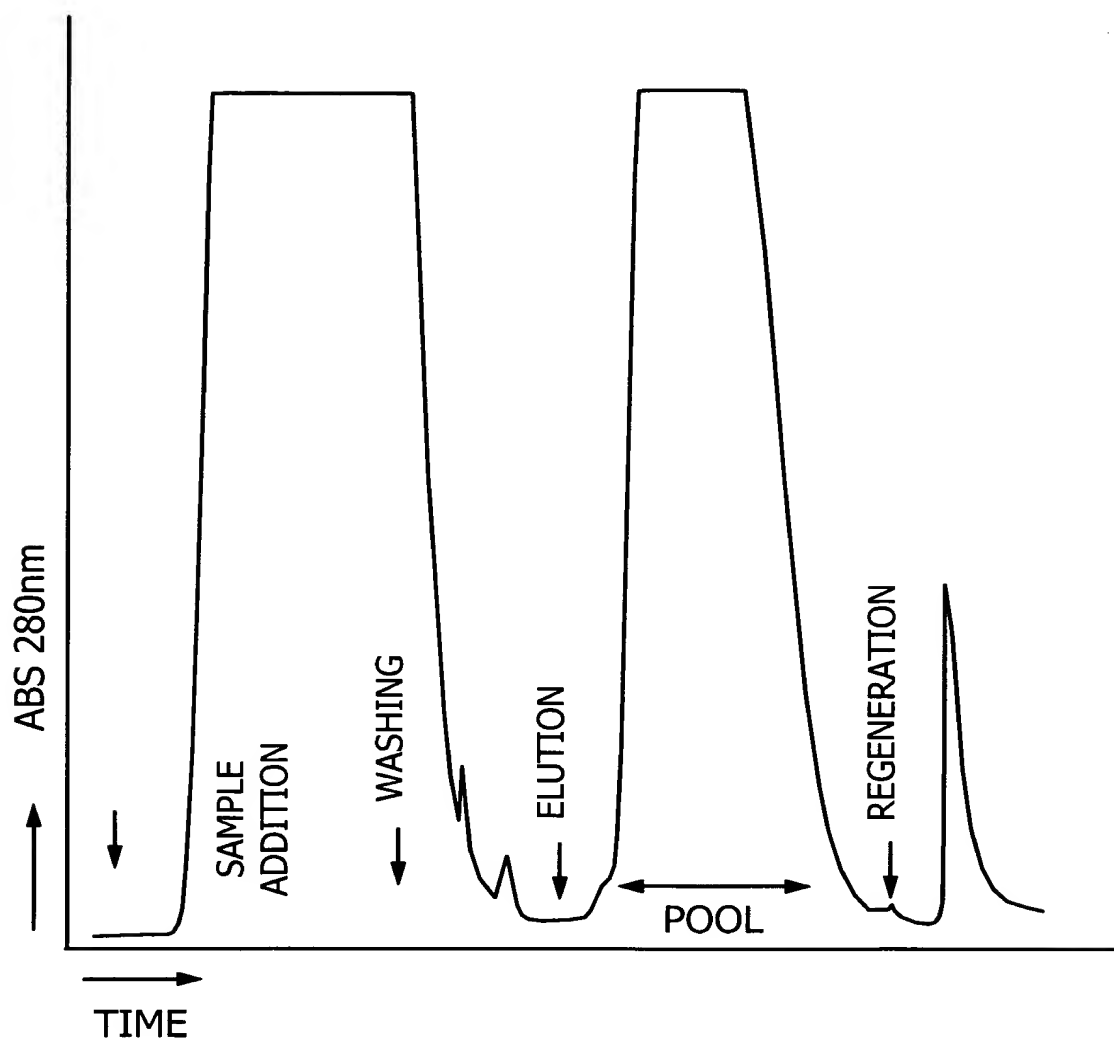
FIG. 13

Met	Thr	Met	Ile	Thr	Asp	Ser	Leu	Ala	Val	Val	Leu	Gln	Arg	Lys
Asp	Trp	Asp	Asn	Pro	Gly	Val	Thr	Gln	Leu	Asn	Arg	Leu	Ala	30
His	Pro	Pro	Phe	Ala	Ser	Trp	Arg	Asn	Ser	Asp	Asp	Ala	Arg	45
Asp	Arg	Pro	Ser	Gln	Gln	Leu	Arg	Ser	Leu	Asn	Gly	Glu	Trp	60
Phe	Ala	Trp	Phe	Pro	Ala	Pro	Glu	Ala	Val	Pro	Ala	Ser	Leu	75
Glu	Ser	Asp	Leu	Pro	Glu	Ala	Asp	Thr	Val	Val	Val	Pro	Ser	90
Trp	Gln	Met	His	Gly	Tyr	Asp	Ala	Pro	Ile	Tyr	Thr	Asn	Val	105
Tyr	Pro	Ile	Thr	Val	Asn	Pro	Pro	Phe	Val	Pro	Thr	Glu	Pro	120
His	His	His	His	Gly	Gly	Arg	Gln	Met	His	Gly	Tyr	Asp	Ala	135
Leu	Arg	Leu	Tyr	Arg	<u>Arg</u>	<u>His</u>	<u>His</u>	<u>Gly</u>	<u>Ser</u>	<u>Gly</u>	<u>Ser</u>	<u>Pro</u>	<u>Ser</u>	150
<u>His</u>	<u>Pro</u>	<u>Arg</u>	<u>His</u>	<u>Ala</u>	<u>Glu</u>	<u>Gly</u>	<u>Thr</u>	<u>Phe</u>	<u>Thr</u>	<u>Ser</u>	<u>Asp</u>	<u>Val</u>	<u>Ser</u>	165
<u>Tyr</u>	<u>Leu</u>	<u>Glu</u>	<u>Gly</u>	<u>Gln</u>	<u>Ala</u>	<u>Ala</u>	<u>Lys</u>	<u>Glu</u>	<u>Phe</u>	<u>Ile</u>	<u>Ala</u>	<u>Trp</u>	<u>Leu</u>	180
<u>Lys</u>	<u>Gly</u>	<u>Arg</u>	<u>Gly</u>											

(SEQ ID NO: 23)
 AMINO ACID SEQUENCE OF FUSION PROTEIN
 ENCODED BY pG117S4HompRHPR

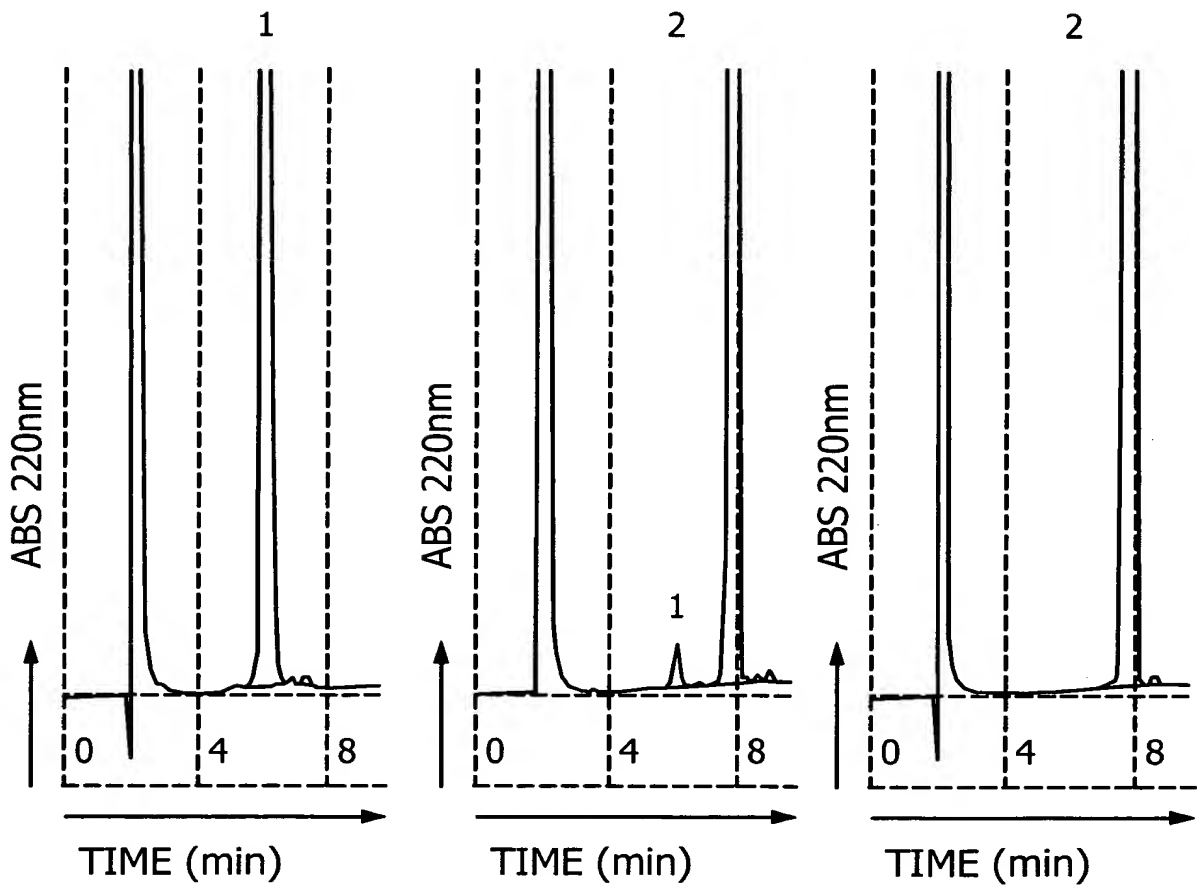
APPROVED	C.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

FIG. 14



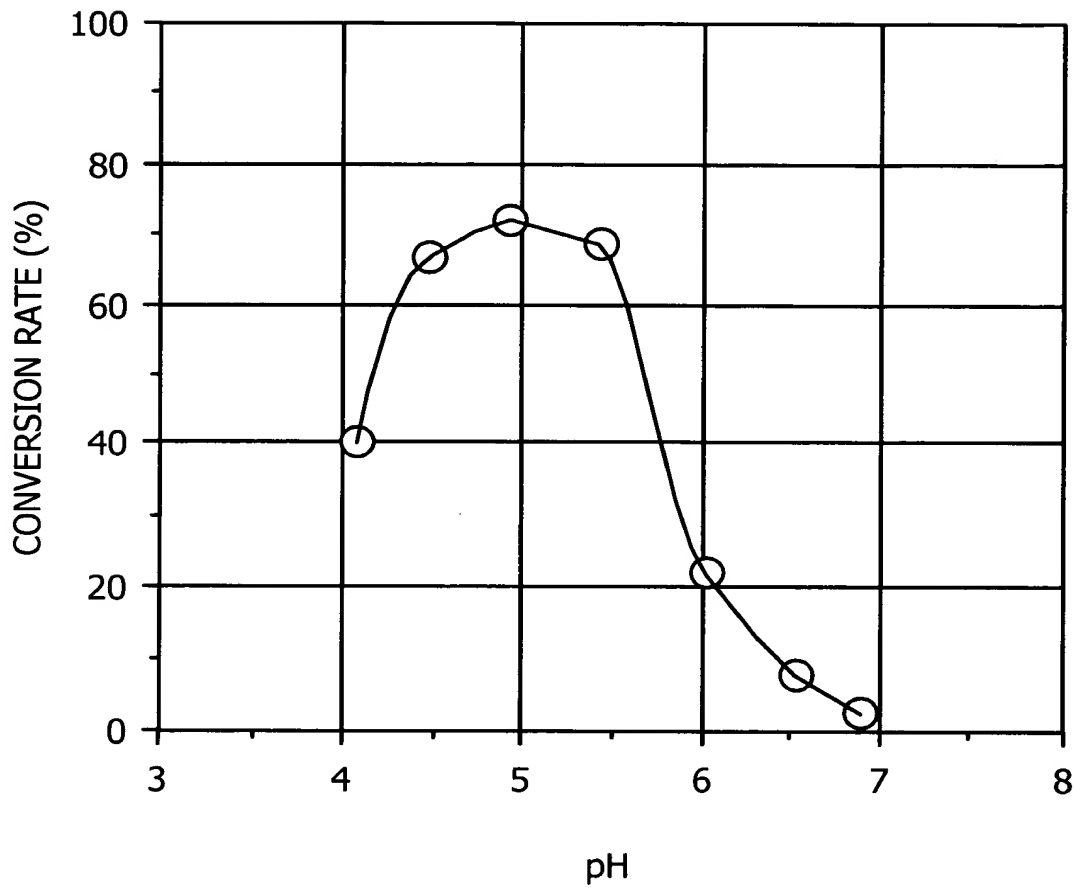
APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

FIG. 15A FIG. 15B FIG. 15C



APPROVED	D.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

FIG. 16



APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

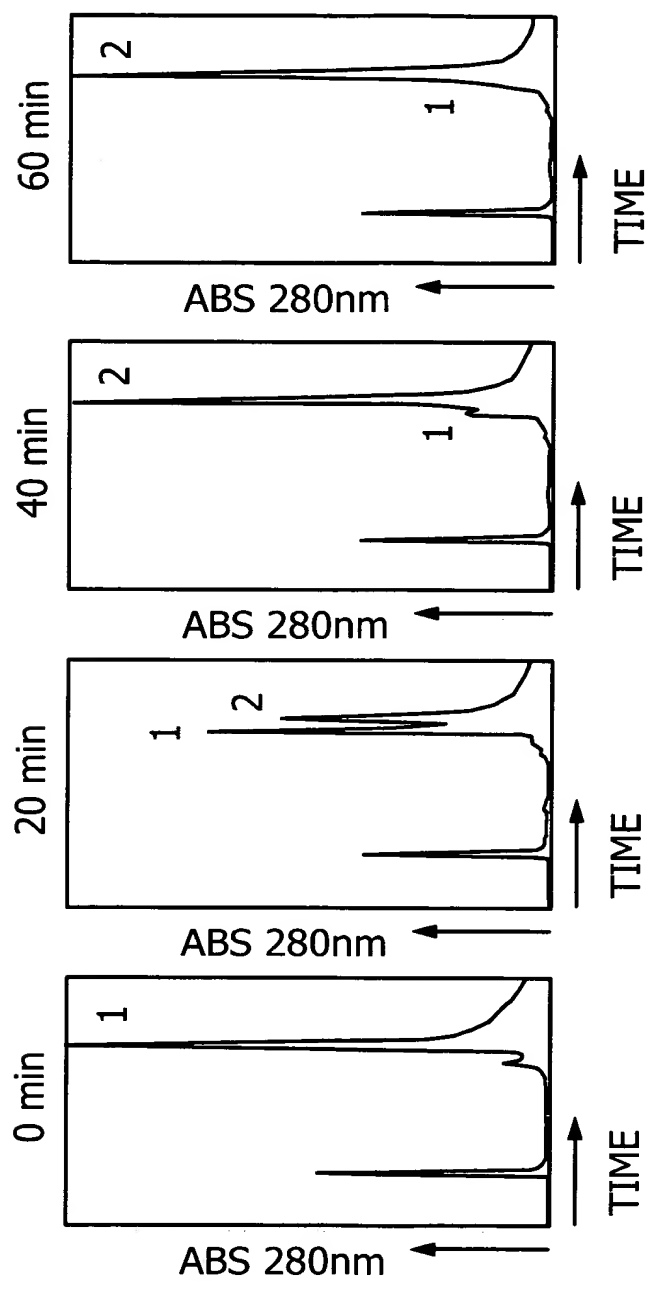


FIG. 17

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

APPL. FILING DATE: SEPTEMBER 29, 1999

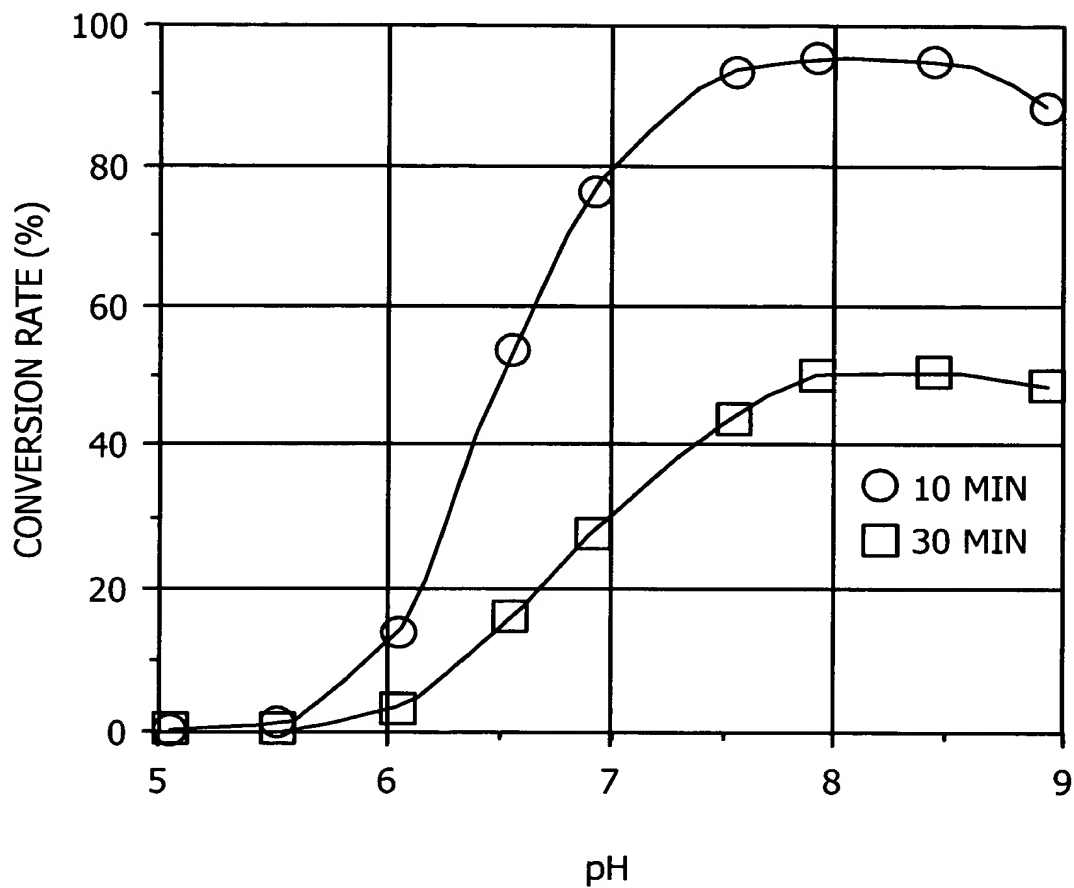
TITLE: PROCESS FOR PRODUCING PEPTIDES USING A HELPER PEPTIDE

INVENTOR(S): KAZUHIRO OHSUYE ET AL

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FIG. 18



APPROVED	O.O. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

APPLN. FILING DATE: SEPTEMBER 29, 1999

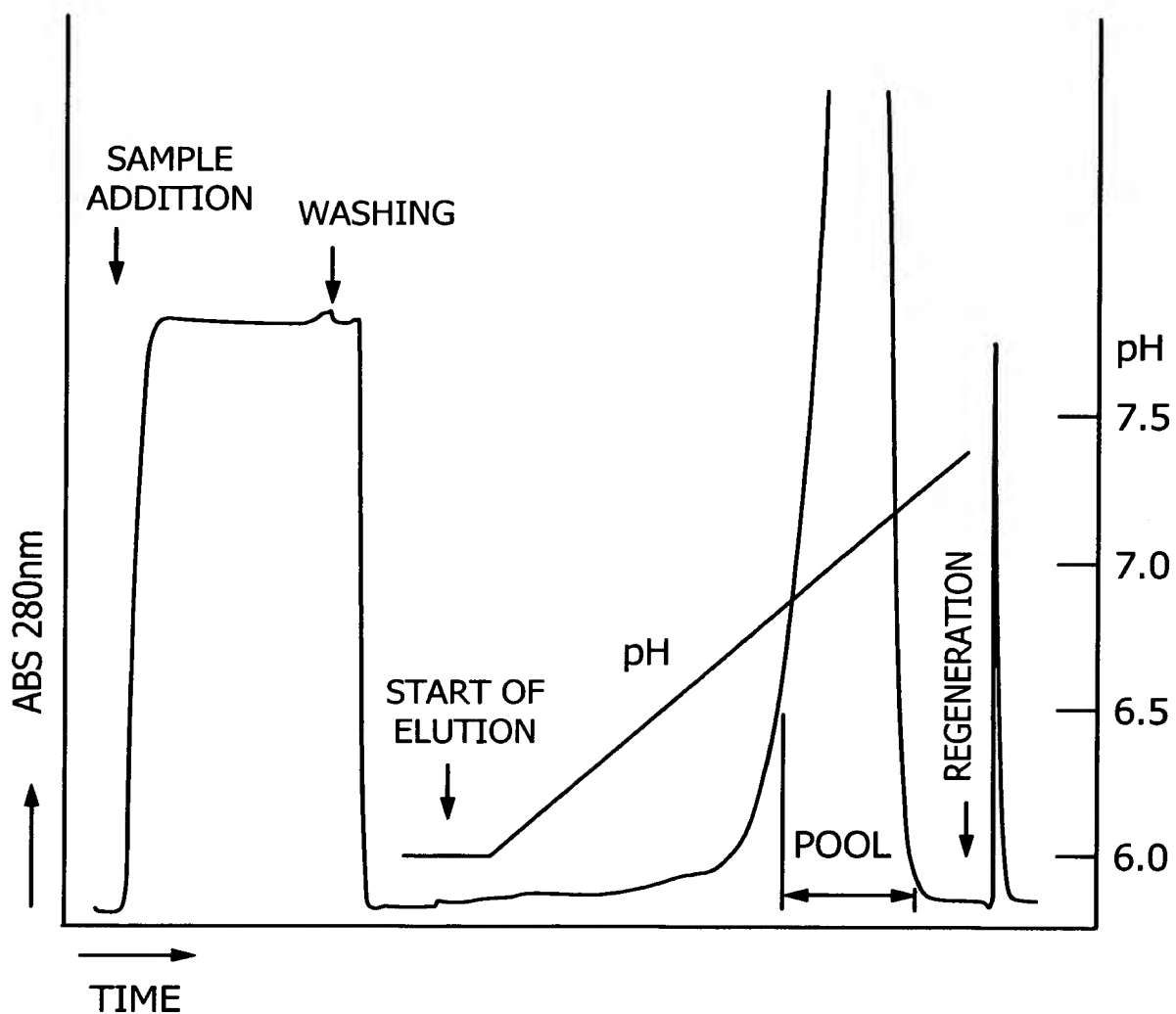
TITLE: PROCESS FOR PRODUCING PEPTIDES USING A HELPER PEPTIDE

INVENTOR(S): KAZUHIRO OHSUYE ET AL

APPLICATION SERIAL NO: 09/402,093

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FIG. 19



APPROVED	U.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

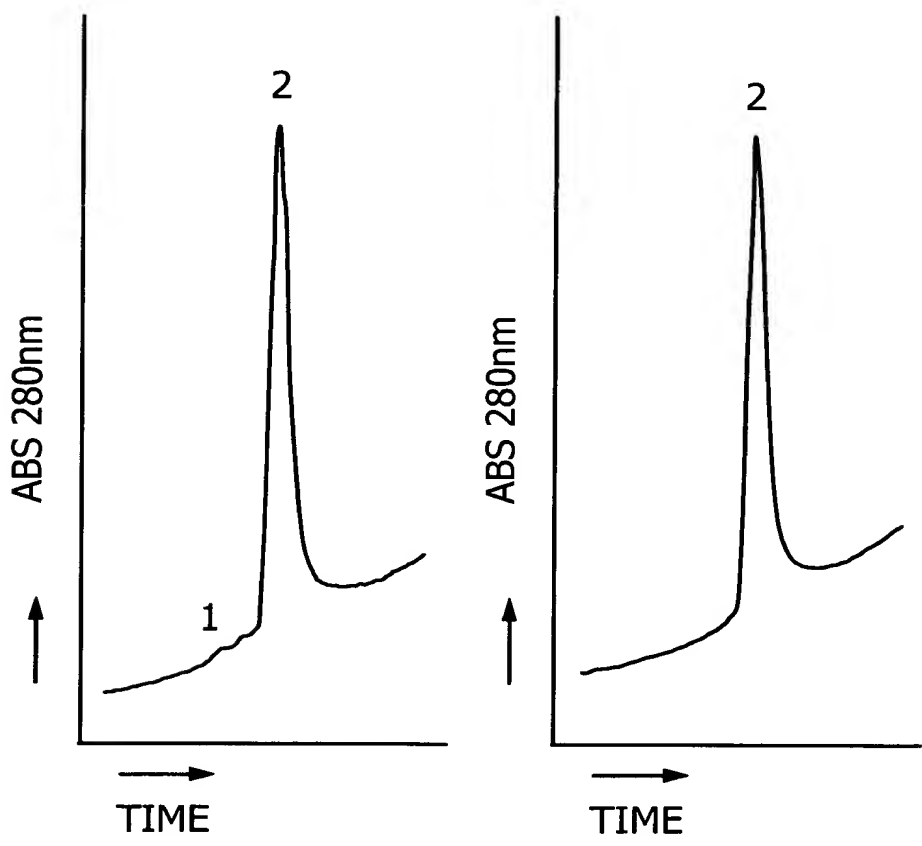
APPLN. FILING DATE: SEPTEMBER 29, 1999

TITLE: PROCESS FOR PRODUCING PEPTIDE USING A HELPER PEPTIDE

INVENTOR(S): KAZUHIRO OHSUYE ET AL

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FIG. 20A FIG. 20B



APPROVED	J.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

FIG. 21A FIG. 21B FIG. 21C FIG. 21D FIG. 21E

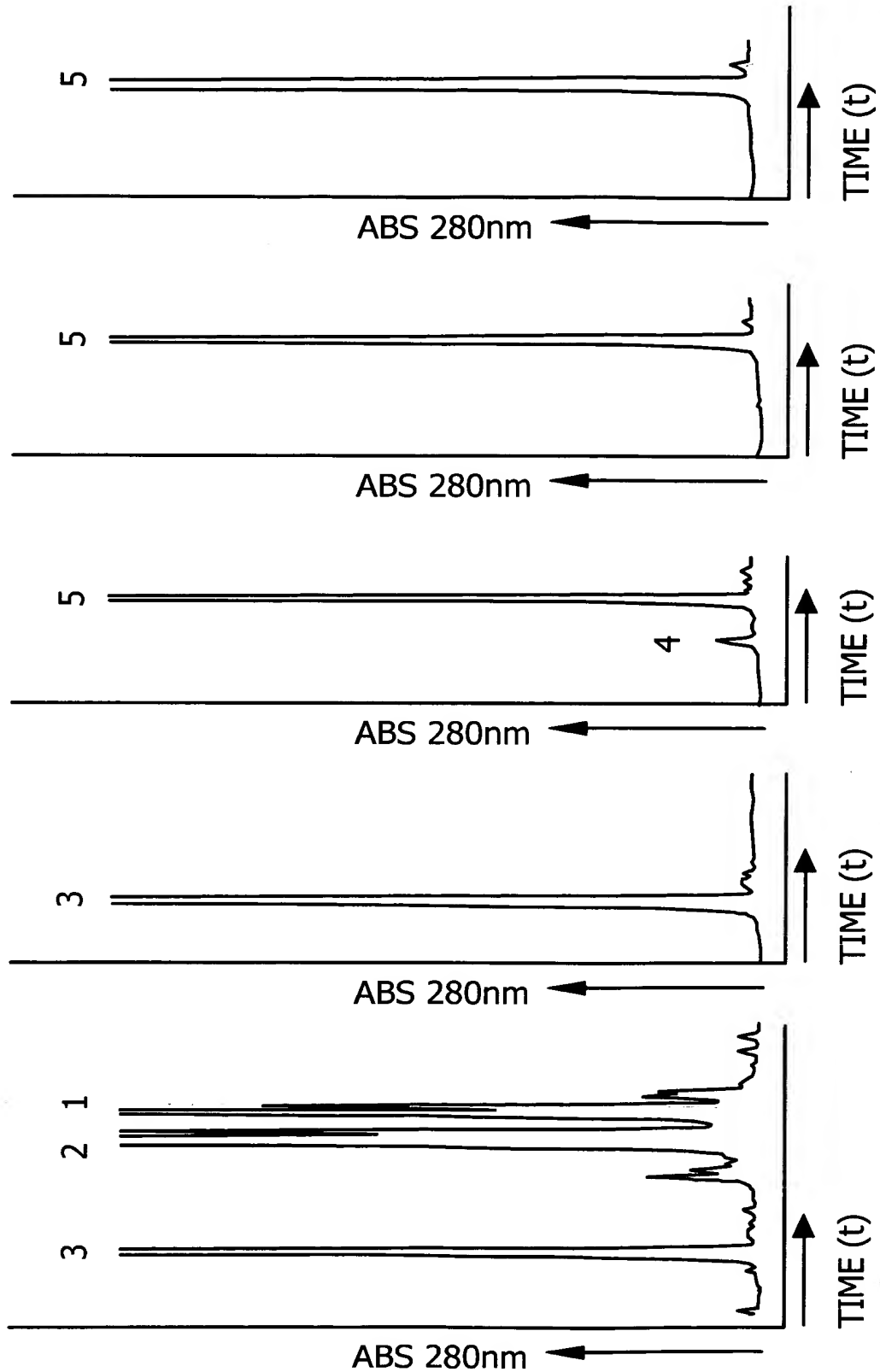
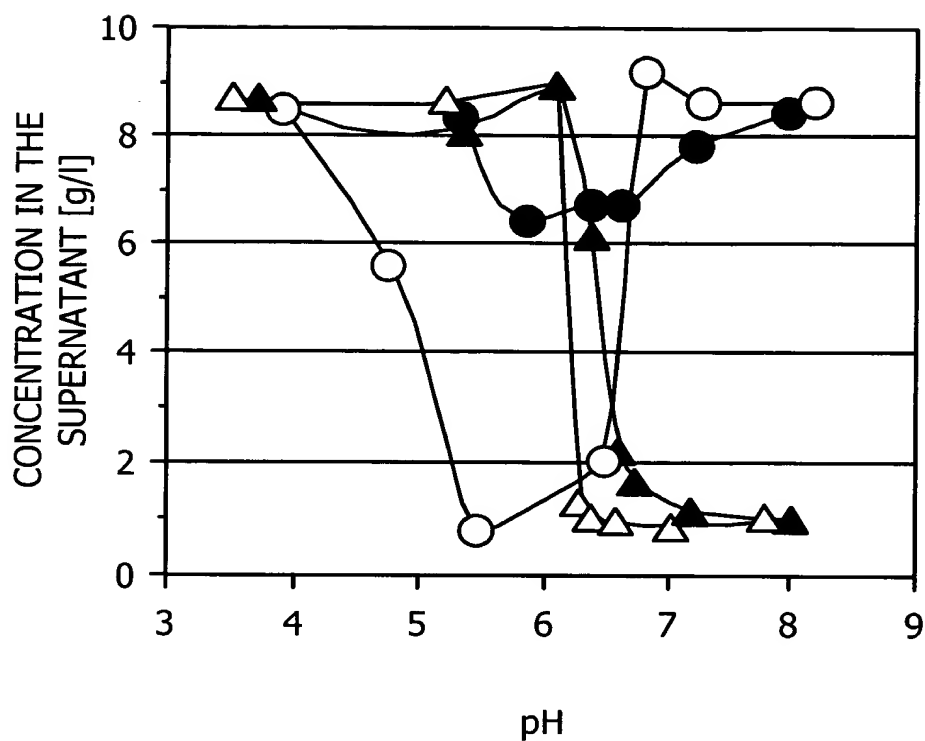


FIG. 22



- △ RHHGP [G]
- ▲ RHHGP-1
- GLP-1(7-37)
- GLP-1(7-36)NH₂

APPROVED	O.G. FIG.	
BY	CLASS	SUBCLASS
DRAFTSMAN		

FIG. 23A
TWEEN80

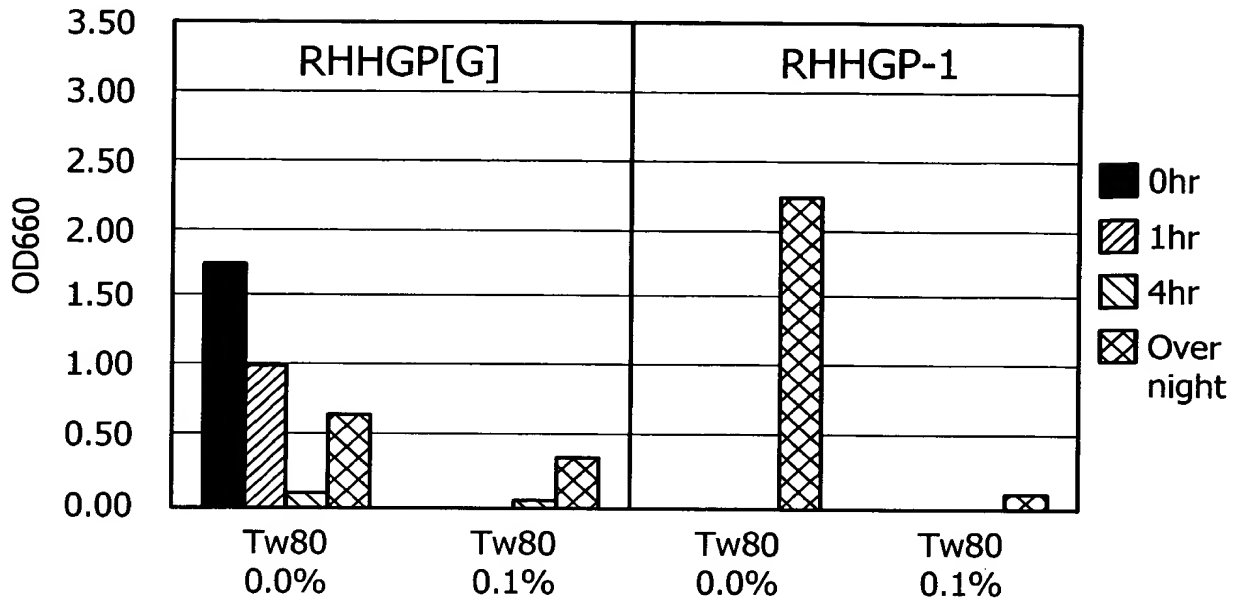


FIG. 23B
TWEEN80

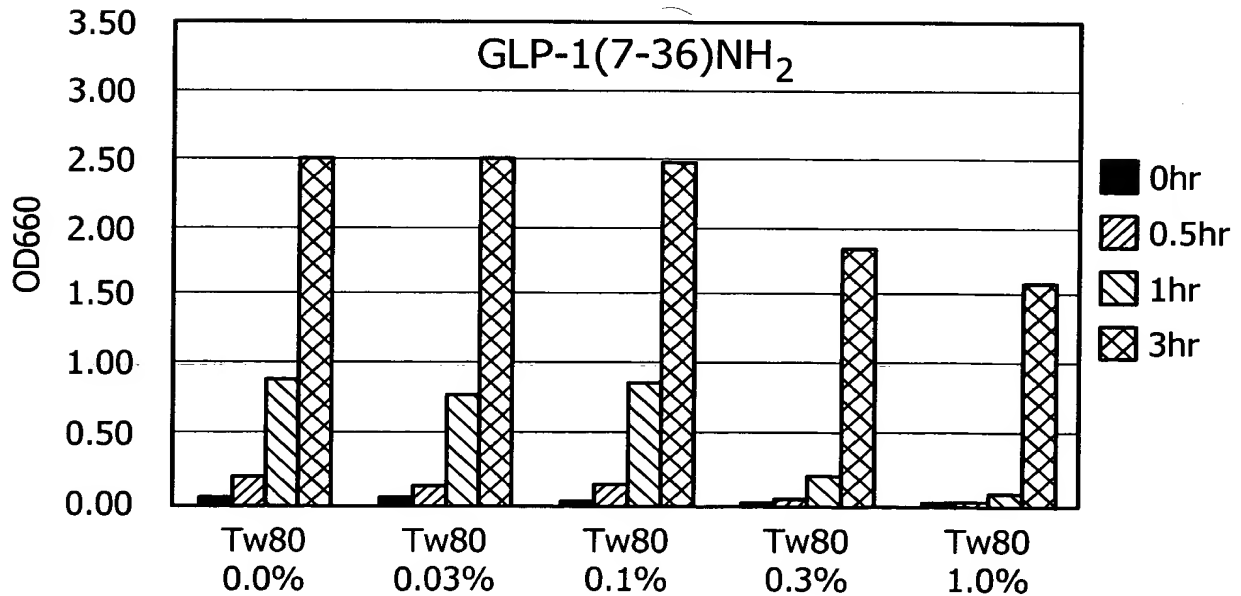


FIG. 24A

NaCl

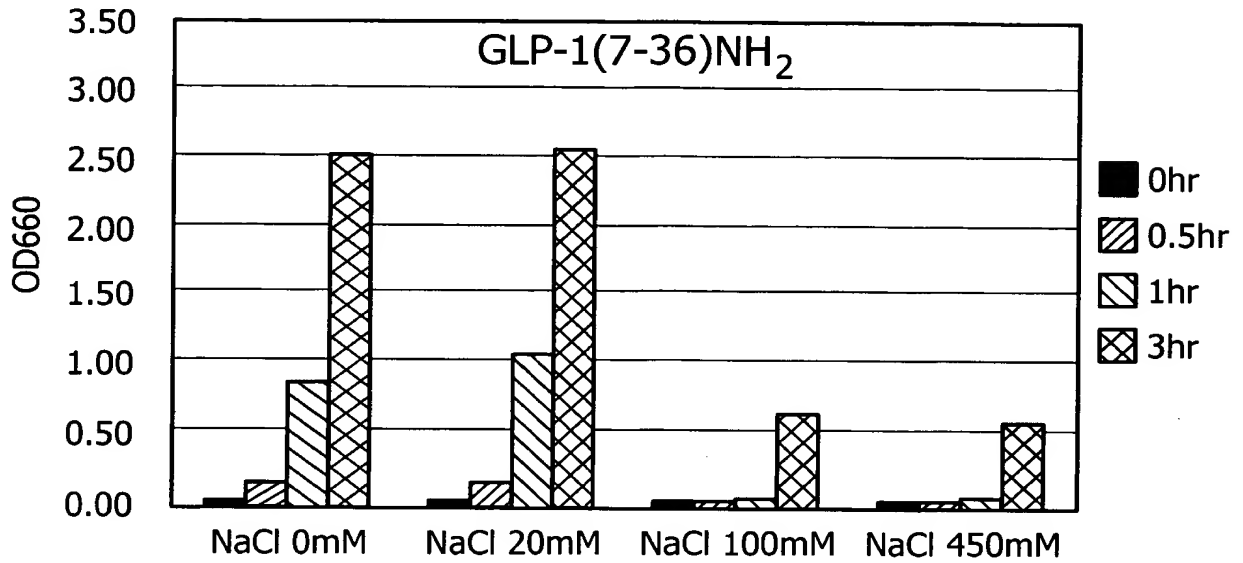


FIG. 24B

TEMPERATURE

